



**Luminant**

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CP-201000074  
Log # TXX-10010

Ref. # 10CFR50.73(a)(2)(iv)(A)

March 3, 2010

U. S. Nuclear Regulatory Commission  
ATTN: Document Control Desk  
Washington, DC 20555

SUBJECT: COMANCHE PEAK NUCLEAR POWER PLANT  
DOCKET NO. 50-445  
LICENSEE EVENT REPORT 445/10-001-00, UNIT 1 TRIP DUE TO PRESSURE RELAY  
ACTUATION ON MAIN TRANSFORMER 01

Dear Sir or Madam:

Pursuant to 10CFR50.73(a)(2)(iv)(A), Luminant Generation Company LLC (Luminant Power) hereby submits enclosed License Event Report (LER) 445/10-001-00, Unit 1 trip due to pressure relay actuation on Main Transformer 01. This event did not result in a safety system functional failure. This event did not affect the health and safety of the public or plant personnel.

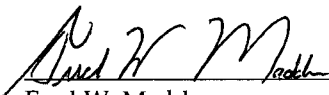
This communication contains no licensing basis commitments regarding Comanche Peak Units 1 and 2.

Should you have any questions, please contact Ms. Tamera J. Ervin-Walker at (254)897-6902.

Sincerely,

Luminant Generation Company LLC

Rafael Flores

By:   
Fred W. Madden  
Director, Oversight & Regulatory Affairs

TJEW  
Enclosure - LER 445/10-001-00

c - E. E. Collins, Region IV  
B. K. Singal, NRR  
Resident Inspectors, Comanche Peak

A member of the STARS (Strategic Teaming and Resource Sharing) Alliance

Callaway · Comanche Peak · Diablo Canyon · Palo Verde · San Onofre · South Texas Project · Wolf Creek

IE 22  
NRR

<b>NRC FORM 366</b> (9-2007)		<b>U.S. NUCLEAR REGULATORY COMMISSION</b>			APPROVED BY OMB NO. 3150-0104 8/31/2010		EXPIRES:												
<b>LICENSEE EVENT REPORT (LER)</b>  (See reverse for required number of digits/characters for each block)										Estimated burden per response to comply with this mandatory collection request: 80 hours. Reported lessons learned are incorporated into the licensing process and fed back to industry. Send comments regarding burden estimate to the Records and FOIA/Privacy Service Branch (T-5 F52), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to infocollects@nrc.gov, and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202 (3150-0104), Office of Management and Budget, Washington, DC 20503. If a means used to impose an information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.									
<b>1. FACILITY NAME</b> Comanche Peak Nuclear Power Plant					<b>2. DOCKET NUMBER</b> 05000 445					<b>3. PAGE</b> 1 OF 4									
<b>4. TITLE</b> UNIT 1 TRIP DUE TO PRESSURE RELAY ACTUATION ON MAIN TRANSFORMER 01																			
<b>5. EVENT DATE</b>			<b>6. LER NUMBER</b>			<b>7. REPORT DATE</b>			<b>8. OTHER FACILITIES INVOLVED</b>										
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REV NO.	MONTH	DAY	YEAR	FACILITY NAME N/A										
01	09	2010	2010	-- 001 --	0	03	03	2010	FACILITY NAME DOCUMENT NUMBER 05000										
<b>9. OPERATING MODE</b>  1			<b>11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §:</b> (Check all that apply)																
			<input type="checkbox"/> 20.2201(b) <input type="checkbox"/> 20.2201(d) <input type="checkbox"/> 20.2203(a)(1) <input type="checkbox"/> 20.2203(a)(2)(i)	<input type="checkbox"/> 20.2203(a)(3)(i) <input type="checkbox"/> 20.2203(a)(3)(ii) <input type="checkbox"/> 20.2203(a)(4) <input type="checkbox"/> 50.36(c)(1)(i)(A)	<input type="checkbox"/> 50.73(a)(2)(i)(C) <input type="checkbox"/> 50.73(a)(2)(ii)(A) <input type="checkbox"/> 50.73(a)(2)(ii)(B) <input type="checkbox"/> 50.73(a)(2)(iii)	<input type="checkbox"/> 50.73(a)(2)(vii) <input type="checkbox"/> 50.73(a)(2)(viii)(A) <input type="checkbox"/> 50.73(a)(2)(viii)(B) <input type="checkbox"/> 50.73(a)(2)(ix)(A)													
<b>10. POWER LEVEL</b>  100			<input type="checkbox"/> 20.2203(a)(2)(ii) <input type="checkbox"/> 20.2203(a)(2)(iii) <input type="checkbox"/> 20.2203(a)(2)(iv) <input type="checkbox"/> 20.2203(a)(2)(v) <input type="checkbox"/> 20.2203(a)(2)(vi)	<input type="checkbox"/> 50.36(c)(1)(ii)(A) <input type="checkbox"/> 50.36(c)(2) <input type="checkbox"/> 50.46(a)(3)(ii) <input type="checkbox"/> 50.73(a)(2)(i)(A) <input type="checkbox"/> 50.73(a)(2)(i)(B)	<input checked="" type="checkbox"/> 50.73(a)(2)(iv)(A) <input type="checkbox"/> 50.73(a)(2)(v)(A) <input type="checkbox"/> 50.73(a)(2)(v)(B) <input type="checkbox"/> 50.73(a)(2)(v)(C) <input type="checkbox"/> 50.73(a)(2)(v)(D)	<input type="checkbox"/> 50.73(a)(2)(x) <input type="checkbox"/> 73.71(a)(4) <input type="checkbox"/> 73.71(a)(5) <input type="checkbox"/> OTHER VOLUNTARY LER													
			<b>12. LICENSEE CONTACT FOR THIS LER</b>																
FACILITY NAME									TELEPHONE NUMBER (Include Area Code)										
Timothy A. Hope, Nuclear Licensing Manager									254-897-6370										
<b>13. COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT</b>																			
CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX		CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX									
X	EL	XFMR	ABB	Y															
<b>14. SUPPLEMENTAL REPORT EXPECTED</b> <input type="checkbox"/> YES (If yes, complete 15. EXPECTED SUBMISSION DATE) <input checked="" type="checkbox"/> NO										<b>15. EXPECTED SUBMISSION DATE</b>					MONTH	DAY	YEAR		
<b>ABSTRACT</b> (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines)  On January 9, 2010, Comanche Peak Nuclear Power Plant (CPNPP) Unit 1 was in Mode 1 operating at 100% power. At 1028 hours, the Unit 1 Main Turbine tripped due to a pressure relay actuation on the Unit 1 Main Transformer 01 and the Main Turbine Trip caused an automatic reactor trip. All control rods fully inserted, and all Auxiliary Feedwater pumps started as expected as a result of the reactor trip. All systems responded normally during and following the event. Internal inspection of the transformer showed that the relay actuation resulted from an internal failure of the Main Transformer as a result of a phase to ground fault. The exact cause of the fault could not be determined. Immediate corrective actions included isolating the Main Transformer 01 from Unit 1 and the other Main Transformer 02. On January 11, 2010, Unit 1 was synchronized to the grid at 0011 hours and reached a 640 megawatt output by 2100 hours. On January 19, 2010, a planned outage was taken on Unit 1 to install a spare transformer. Unit 1 was synchronized to the grid on January 21, 2010 at 2326 hours and reached 100% power the next day at 1341 hours.  All times in this report are approximate and are Central Standard Time unless noted otherwise.																			

**LICENSEE EVENT REPORT (LER)  
CONTINUATION SHEET**

1. FACILITY NAME Comanche Peak Nuclear Power Plant	2. DOCKET 05000 - 445	6. LER NUMBER			3. PAGE 2 OF 4
		YEAR	SEQUENTIAL NUMBER	REV NO.	
		2010	-- 001 --	00	

**NARRATIVE** (If more space is required, use additional copies of NRC Form 366A) (17)

**I. DESCRIPTION OF THE REPORTABLE EVENT**

**A. REPORTABLE EVENT CLASSIFICATION:**

10CFR50.73(a)(2)(iv)(A) "Any event or condition that resulted in a manual or automatic actuation of any of the systems listed in paragraph (a)(2)(iv)(B)."

**B. PLANT CONDITION PRIOR TO EVENT:**

On January 9, 2010, CPNPP Unit 1 was in Mode 1, operating at 100% power.

**C. STATUS OF STRUCTURES, SYSTEMS, OR COMPONENTS THAT WERE INOPERABLE AT THE START OF THE EVENT AND THAT CONTRIBUTED TO THE EVENT**

There were no inoperable structures, systems, or components that contributed to the event.

**D. NARRATIVE SUMMARY OF THE EVENT, INCLUDING DATES AND APPROXIMATE TIMES:**

On January 9, 2010, CPNPP Unit 1 was in Mode 1 operating at 100% power. At 1028 hours, the Unit 1 Main Turbine tripped due to a pressure relay [EIS: (RLY)] actuation on the Unit 1 Main Transformer 01 [EIS: (XFMR)] and the Main Turbine Trip caused an automatic reactor trip. All control rods fully inserted and all three Auxiliary Feedwater pumps [EIS: (BA)(P)] started as expected as a result of the reactor trip. All systems responded normally during and following the event. There were no safety consequences impacting plant or public safety as a result of this event.

In the Control Room (CR), the following alarms were received at 1028 (in order): 72 Generator Lockout Relay 82-2/1G Trip, 70 Generator Lockout Relay 86-1/1G Trip, 98 Generator Off the Line-Load Rejection Protection, 24 Turbine Trip & P9 Reactor Trip, 97 Turbine trip, and 92 CRDS Breakers 52/RTA & RTB open. These alarms were followed by a normal plant trip response.

The Unit 1 Main Transformer 01 is an ABB transformer and is one of two Unit 1 main generator output transformers designed to step-up the three-phase, 22-thousand volts (kV) output by the generator to 345kV for power transmission to the electric power grid. The other Unit 1 Main Transformer 02 is also manufactured by ABB.

Immediate corrective actions included isolating the Main Transformer 01 from Unit 1 and the other Main Transformer 02. On January 11, 2010, Unit 1 was synchronized to the grid at 0011 hours and reached a 640 megawatt output by 2100 hours.

**E. THE METHOD OF DISCOVERY OF EACH COMPONENT OR SYSTEM FAILURE, OR PROCEDURAL PERSONNEL ERROR**

Operators (utility, licensed) in the Unit 1 CR received a Unit 1 Main Transformer 01 pressure alarm.

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**NARRATIVE** (If more space is required, use additional copies of NRC Form 366A) (17)

**II. COMPONENT OR SYSTEM FAILURES**

**A. CAUSE OF EACH COMPONENT OR SYSTEM FAILURE**

There was an internal phase to ground fault on Unit 1 Main Transformer 01 that could not be rectified. The exact cause of the fault could not be determined.

**B. FAILURE MODE, MECHANISM, AND EFFECTS OF EACH FAILED COMPONENT**

The Unit 1 Main Turbine tripped due to a pressure relay actuation on the Unit 1 Main Transformer 01 and the Main Turbine Trip caused an automatic reactor trip.

**C. SYSTEMS OR SECONDARY FUNCTIONS THAT WERE AFFECTED BY FAILURE OF COMPONENTS WITH MULTIPLE FUNCTIONS**

Not applicable - The component that failed did not have any multiple functions.

**D. FAILED COMPONENT INFORMATION**

Manufactured by ABB POWER T&D CO  
20.9/345kV, Three phase, Main Transformer

**III. ANALYSIS OF THE EVENT**

**A. SAFETY SYSTEM RESPONSES THAT OCCURRED**

Both Motor Driven Auxiliary Feedwater Pumps and the Turbine Driven Auxiliary Feedwater Pump started as expected as a result of the reactor trip.

**B. DURATION OF SAFETY SYSTEM TRAIN INOPERABILITY**

Not applicable - there was no safety system train inoperability that resulted from this event.

**C. SAFETY CONSEQUENCES AND IMPLICATIONS OF THE EVENT**

This event is bounded by the CPNPP Final Safety Analysis Report (FSAR) accident analysis which assumes conservative initial conditions which bound the plant operating range and other assumptions which could reduce the capability of safety systems to mitigate the consequences of the transient.

This event is bounded by the analysis of the Turbine trip presented in Section 15.2.3 of the CPNPP FSAR. The analysis uses a conservative assumption to demonstrate the capability of pressure relieving devices and to demonstrate core protection margins. The event of January 9, 2010, occurred at 100% reactor power, and all systems and components functioned as designed.

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**NARRATIVE** (If more space is required, use additional copies of NRC Form 366A) (17)

Based on the above, it is concluded that the health and safety of the public were unaffected by this condition and this event has been evaluated to not meet the definition of a safety system functional failure per 10CFR50.73(a)(2)(v).

**IV. CAUSE OF THE EVENT**

On January 9, 2010, CPNPP Unit 1 was in Mode 1 operating at 100% power. At 1028 hours, the Unit 1 Main Turbine tripped due to a pressure relay actuation on the Unit 1 Main Transformer 01 and the Main Turbine Trip caused an automatic reactor trip.

Internal inspection of the transformer showed that the relay actuation resulted from an internal failure of the transformer that could not be rectified. The specific cause could not be determined. Subsequent oil testing revealed high levels of gasses. Since the transformer was shell form, the windings are horizontal and only the top half was visible. There was also evidence of movement in the H1 and H2 windings, the insulating material was distorted, the blocks were broken loose, and carbon had covered the windings and visible structures. There was no evidence of a problem with the lead assemblies or bushings.

**V. CORRECTIVE ACTIONS**

Immediate corrective actions included isolating Main Transformer 01 from Unit 1 and the other Main Transformer 02. On January 11, 2010, Unit 1 was synchronized to the grid at 0011 hours and reached a 640 megawatt output by 2100 hours.

On January 19, 2010, a planned outage was taken on Unit 1 to install a spare transformer. Unit 1 was synchronized to the grid on January 21, 2010 at 2326 hours and reached 100% power the next day at 1341 hours.

**VI. PREVIOUS SIMILAR EVENTS**

There have been no previous similar reportable events at CPNPP in the last three years.